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ABSTRACT

This document defines a performance objective as a clear and measurable learning outcome. Performance objectives are equated with behavioral objectives. This definition is translated into a system that permits teachers to exchange ideas. The operation of the system is demonstrated using as an example six teachers developing a course in auto mechanics. The relationships between classroom objectives, students' career objectives, and industry's manpower and skill needs are examined and implications are drawn for the development of career education and training programs. The place of performance objectives in an overall systems approach to education is discussed with emphasis on the need for evaluation and feedback. The document concludes with an outline of the possible distortions of performance objectives and a listing of techniques for using them properly. (Author/RT)

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11/3/71

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# H O W  T O  C L A R I F Y

# C L A S S R O O M  I N S T R U C T I O N A L  G O A L S

# T H R O U G H

# P E R F O R M A N C E

# O B J E C T I V E S

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(Reprints of Five Introductory Lessons)

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NOTE : How This Document Came into Existence

Basically this document is a collection of working papers written to fill specific needs of teachers starting to think about and write performance objectives. Some of these sections were developed at one or more seminars and discussions on the implementation of a process to improve classroom instruction. It was felt that the front lines of education are to be found in the classroom and not in the curriculum guides; similarly, the place to test out new ideas in education is not in a psychological laboratory but in the classroom in front of real and often unpredictable students. Similarly, the desired objective of all this work was not the discovery of a method or of a perfectly formulated objective; what was sought was a process of introducing objectives into the classroom in a format which could benefit from the experiences of hundreds of teachers trying to make their instruction more relevant.

It was not felt that educational progress meant an immediate or drastic change in the way things were to be done. Innovations that become progress have a quiet way of gradually inserting themselves into the classrooms of teachers who are not satisfied with their past

successes. Teachers like this have empirically discovered their own individual way of testing out tentative but clearly defined approaches to deal with classroom objectives : this applies both to objectives that can be pre-planned with precision and to objectives that seem to emerge with serendipity. Society needs both kinds of goals : it cannot afford to have "creative spellers" or "imitative thinkers."

Re-reading each of the following sections makes clearer and clearer that certain values were almost unconsciously smuggled into the text. To avoid any misrepresentation, here are a few of them for consideration :

- Not all teachers write their classroom goals; this does not mean that these teachers have not thought about instructional objectives.

- Sometimes the opponents of performance objectives have more insight into what is really wanted as a result of all the discussion and writing of course objectives.

- This is especially apparent when it comes to the writing of objectives for even one course. If everything to be taught had to be written out, the paperwork would be impossible to manage.

- Seen in this perspective, writing performance objectives really means writing the most important anticipated outcomes of learning.

- In practice, this means selecting from the work of others and writing a few objectives to meet the needs of both individual students and of individual teachers in a particular local situation.

- Since it seems obvious that many teachers base their classroom performance upon how they were taught, it would seem that, if any system of performance objectives is to succeed, it must be based upon the shared experiences and objectives of many teachers teaching the same or similar courses.

- Not surprisingly, the more one leaves the realm of elementary and psychomotor objectives, the more difficult it becomes to pre-specify educational goals. This does not mean that a goal which can't be precisely spelled out must be excluded from the curriculum.

- It is to be expected that many teachers will start writing performance goals of a very poor quality when considered from the viewpoints of relevance and specificity. These goals are not to be rejected by a school; they should be accepted and improved in an atmosphere which encourages colleague collaboration.

- Literature on behavioral and performance objectives is quite well written and convincing. However, when it comes to actual implementation, the process of clearly specifying objectives is one that can lead to a number of excesses that can interfere with the main job of a teacher.

- Thus, it must be recalled that the main job of a teacher is making sure that his students are learning. No matter how he does it, a teacher is teaching when his students are learning.

- If such things as the writing or choosing of goals or objectives interferes with this teaching-learning process, then writing and choosing must be subordinated to the primary objective of increasing learning.

The following pages were written to share with you an approach that has been found helpful in getting teachers to start clarifying their classroom objectives in such a way that they can share their classroom discoveries with other teachers. It is hoped that reading it will help you share your classroom objectives and experience with others.

C L A R I T Y

Specifying

What

An Educator

Is Trying

to Do

## DEFINITION : What Is a Performance Objective ?

One of the key concepts taken for granted in the following pages is that of "performance objective" or "behavioral objective." This concept is often associated with such things as criterion-referenced objectives, built-in evaluation, terminal student performance, and performance-oriented objectives. For the purpose of this discussion, all of these terms are assumed to be practically synonymous even though each emphasizes a different aspect.

A performance objective is defined as a statement of an educational goal or objective in such a way as to clearly answer three questions about the teaching-learning-evaluation process :

- Exactly what will the successful student be expected to do?
- What materials and what procedures constitute an integral part of this student performance?
- How will one know when the student is performing this goal successfully?

## Implications of This Definition

Performance objectives tell the student or trainee what it is that he or she will be expected to do when he is evaluated, the conditions under which he will have to perform, and the level, extent, or quality of performance expected.

To meet the standards herein spelled out, such an objective must be written in language that is clearly understandable by students, trainees, and the general public. Straightforward language works better than scholarly and obscure terminology as a vehicle with which to write objectives.

A well-written performance objective should do three things:

1st
- It should clearly indicate what it is that a student who has mastered the objective will do or perform.

2nd
- It should say under what conditions the student will be expected to do this.

3rd
- It should say to what extent or degree of excellence the student will demonstrate his ability to perform.

The mere act of writing objectives will cause most teachers to come to grips with what they are trying to do in the classroom. This is a positive step towards relevant instruction. It also will give rise to an important question in making instruction more effective, "What materials and what procedures will best help the student attain objectives commonly agreed upon as relevant?"

This document will center on writing objectives and on working them into an integrated system. However, it must always be kept in mind that writing is the means to other goals, e.g. the development of goals meaningful both to student and to teachers and the evaluation of methodology in order to improve instruction, to name only two examples.

## The Rationale Behind Performance Objectives

Performance objectives are statements which describe what successful students will be capable of doing at the conclusion of a particular learning unit.

- Properly written performance objectives leave no doubt as to what is expected of the trainee at the end of instruction.

- These objectives do not try to dictate to the teacher the methods to follow or the classroom procedures to employ in his teaching.

- However, they do eliminate haziness about what is to be accomplished.

There is nothing new or extraordinary here. Experienced teachers have been doing this even though they have not always put it down on paper. Writing goals encourages feedback from other teachers. When one starts exchanging professional ideas with colleagues, suggestions and improvements start to emerge in an atmosphere of enthusiasm. The following sections which spell out exactly what is meant by performance, conditions, and extent are intended to help teachers get started expressing, writing, and choosing their objectives.

## Components of a Well-Written Objective

A well-written performance objective should spell out three things:

- the performance expected (an observable activity demonstrable by the learner)

- the conditions wherein the student will have an opportunity to demonstrate the newly acquired behavior or performance

- the extent or degree of the expected student performance which will serve as the evaluative criteria to assess the anticipated performance.

What Is Meant by "Performance"?

Performance can be equated with doing.

If performance is to be measured, it must be observable.

In other words, a statement of performance must specify an activity that can be observed directly.

Such verbs as "know, comprehend, and understand" specify activities that can only be inferred or seen indirectly. An objective is more clearly written when other more visible and more observable verbs are used:

- A teacher who says he wants his students to "understand" carbureters is less clear than a teacher who wants his trainees to be able to "clean" a carburetor.

- Similarly, the teacher who says he wants his students to learn how to "subtract" two digit numbers is more frank in the same circumstances than the teacher who claims for his goal "a deeper understanding" of mathematics.

Neither of these last two objectives is faultlessly written; the conditions and the extent of the desired student behavior are not spelled out, to name only two possible sources of improvement. However, the change from an abstract verb to a more specific verb has improved the visibility and observability of the intended instructional objective.

- It is much easier to recognize a student that can "read" voltmeters than a student who "understands" measuring instruments.

- A student who can "re-wire" a defective motor is more observable than a student who can "comprehend" the principles of electric motors.

Even the word "know" will have a different meaning to a teacher who relies upon "memory" questions and to a teacher who relies upon "brainstorming" techniques. It is helpful to the student if these differences are spelled out.

What Is Meant by "Conditions"?

Conditions refer to the circumstances in which the student is expected to perform.

Every situation will have its own given restrictions which can range from such obvious things as "paper and pencil" and "common tools" which need not always be stated to more complex measurement questions such as:

- Will this be an open or a closed book examination?

- Must the student work strictly from memory for formulas and data or will he be allowed to use reference tables?

- When the student identifies the resistors will he work from memory or with a color guide?

Each of these and similar questions about conditons are important since a change in the details of performance is often directly associated with a different type of cognitive functioning.

What Is Meant by "Extent"?

Extent refers to how well the student is expected to perform.

This can be expressed in a number of ways:

- minimum standards
- maximum number of permissible errors
- specification of time standards
- tolerance
- definition of correct or successful
- expected percentage of success
- minimal number
- degree of excellence

In other words, this is an attempt to make as specific as possible the evaluative criteria that will be used to assess the performance.

D I S P L A Y

An Analysis of Performance, Conditions, and Extent

Do - - - Expressing Objectives in Terms of Student Performance

Some school curriculum guides use words such as "understand, appreciate, know" to express their objectives.

From the point of view of behavioral objectives, the difficulty with these verbs is that the performance is not directly observable. These verbs do not tell what the student or trainee is supposed to be able to do as a result of this knowledge.

Conditions - - - Specifying the Exact Circumstances Under Which the Performance Is to Take Place

Obviously, each set of circumstances that one might develop will make its own specific demands upon the learner who attempts to accomplish the objective.

The idea is not to end up with several hundred specifications for every objective in each section of a course. The idea is to start specifying clearly the types of conditions under which the student will be evaluated. Once this approach enters a teacher's lesson plans, he will inevitably make his teaching both more concrete and more interesting because of its practical and operational orientation.

Extent - - - An Evaluative Measure of Acceptable Performance

Some of the more obvious approaches are time limits, error counts, percentage correct, minimum number, or accuracy. The emphasis is on the degree of excellence to be demonstrated by the student rather than on how the trainee acquired the ability to perform the skill.

## FEEDBACK : Translating This Definition into a System That Permits Teachers to Look over the Shoulders of One Another

Writing objectives in concrete and clear language has been going on for a long time in occupational and vocational education. There has never been any shortage of paperwork documentation in this area.

Too much effort is required to turn out good performance objectives if they are simply going to sit around on a library shelf somewhere. What is proposed here is a method whereby teachers can find out what is being taught in classes similar to to their own. In this way, they will be able to improve their classroom instruction through awareness of what others are doing. This is the heart of any feedback system.

## Objectives Evolve Once They Are Written

The question arises, "How does the average teacher with many time-consuming obligations develop his objectives?"

The following section is not meant to give a theoretical model of how to develop performance objectives in the framework of a feedback system. It is meant to tell the story of six teachers who tried to develop a course in auto mechanics. The idea came to them in the course of a one day training session on how to write performance objectives. Most of their feedback was accomplished by exchanging photocopies of their objectives with each other through the mail. These six teachers did not make use of computerized classification and feedback systems. However, the same principles apply to their primitive collaboration as would apply to more sophisticated computerized systems mentioned in later sections.

## What These Teachers Wanted to Happen

It would be hard to pinpoint the exact motivation of each teacher. A look at their comments might give some idea of what they wanted:

- "I want to find out how other teachers break this course down into instructional blocks."
- "I want to find out what teachers in a similar type community and school situation are doing."
- "I am not satisfied with my own programs and I want to find out what others have found to work."

In a few brief words, each of these teachers was looking for feedback. The idea of writing objectives was simply a means to get there. The format of performance objectives adds the dimension of percision to this necessary teamwork.

## Step One--The Tally Sheet

The first thing these teachers did was to exchange information about course titles and major subdivisions. This soon made it obvious that local situation was a little bit different: each teacher took individual approaches to the same course.

In order to find common territory, each teacher wrote down the major blocks that mapped out the work from September to June. For most teachers, this represented about ten to fifteen major subdivisions within his course.

After this was done, it became evident that there were major terminology variations. A little bit of explanation made it clear that there was about sixty per cent commonality in what was taught by each teacher. Commonality meant that several teachers had similar names and similar content for their blocks. The other course objectives were addressed to local needs and were not always covered by a majority of the six.

It was interesting to note that each teacher had his own particular way of breaking down the subject matter:

- Teacher A relied upon task analysis and job requirements.
- Teacher B tended to have a large number of separate blocks which were centered around each part of the engine and transmission.
- Teacher C seemed to think in terms of marketable skills.
- Teacher D thought in terms of job families and related skills.
- Teacher E felt that students should be exposed to theory first and machinery later on.
- Teacher F didn't give too much thought to course sequence since he preferred to rely on typical production demands as cars came in to be repaired.

## Step Two--Awareness of Local Needs

The teachers found out that one way rigid programs failed to meet varying local conditions was by attempting to set up the same curriculum blocks for all schools and by ignoring the necessary adaptations to meet varying local requirements.

At first, three or four of the teachers thought it would be a good idea to have all students exposed to exactly the same instructional goals and nothing else. They thought this would give a sound statistical basis to their work. When the topic of individualization came up, such a monolithic approach was seen to be humanistically unworkable.

Up to this time, local decision making had been on a very perfunctory level. It usually consisted of a number of gimmicks in order to get the largest budget possible. When seen from the viewpoint of six different schools, it often happened that large amounts of money were spent separately by each school to develop identical or at least very similar programs. This was both time-consuming and very expensive; its result was needless duplication for those objectives which were taught by several schools. The same work was done over and over again without being shared with other schools.

The teachers came up with a solution. It was a decision to share common course goals. Goals not common to several schools would not be abandoned or overlooked. The unique adaptations would be based upon educational benefits as the criterion rather than merely cost-accounting.

If a goal or an objective was found necessary to meet local needs, its expensive development price tag would not be considered the reason to postpone its implementation. The economics made in exchanging common core objectives between similar programs would free local funds to focus on meeting local needs.

## Step Three--Writing the Objectives

Once the course had been broken down into blocks, it was found helpful to ask this question. "What are the two or three most important objectives of this particular block of instruction?" rather than "Have all the possible objectives for this particular block been listed?"

The reasons for this are obvious:

- Concentrating on a few objectives enabled the teacher to stress educational values rather than paperwork.
- Teachers would then be able to think in terms of the big picture rather than in day-by-day or minute-by-minute miniaturized ideas.
- Feedback will almost be certain to occur. When one teacher saw only one or two principal objectives of another teacher, he began to notice that he himself had chosen another aspect as more important. Since the other teacher was also experienced, he began to ask himself quite seriously who had made the better choice.
- Rather than worry about doing all this writing himself, the typical teacher found out that he was able to share his own ideas and to borrow those of others.
- The emphasis was on selecting the most effective objectives, no matter who had written them. This placed each teacher in the right frame of mind to begin improving his own performance.
- One of the difficulties of the modern communications gap is having too much information. A hundred objectives would have been too much for these six teachers to handle at one time. Two or three objectives every two weeks from each teacher was found to be quite manageable.

Step Four - Bouncing Objectives Around - his is a process that requires the ability o give and take. Sometimes, the teacher efended his own objectives; other times, e acknowledged that his colleague had eally done a better job.

Teacher A wrote, "Given a malfunctioning valve, the student will be able to repair it in five minutes or less."

Teacher B wrote,

"CONDITIONS: Given an automobile, reference manual, fender covers, tachometer, and screwdriver,

PERFORMANCE: The trainee will adjust the idle to factory specifications and normalize the engine,

EXTENT: Within $\pm$ 25 RPM and demonstrating all safety rules."

Teacher C wrote, "My students will be able to get a part-time job Saturdays after school earning about $2.00 an hour after three months of instruction; they should be able to earn about $3.50 an hour after another three months for a B grade. Those who make more or less will get A's or C's."

Teacher D wrote, "Once the student has demonstrated the ability to do a grease job, he must be able to give snappy service which impresses the customer with his promptness, speed, accuracy, and interest in doing a good job."

Teacher E wrote, "Every student is to be able to tell, in terms of physics or mechanics, exactly why he turns a screw or makes an adjustment. It is not enough to merely do the right repair; the student must always be able to think and to tell why; this proves he has thought."

Teacher F wrote, "The student must realize that after every repair job, the car must be cleaned and given the appearance of being fresh off the assembly line even if this means washing it after an oil change."



Step Five - The Interaction - Without realizing it, each teacher had some insights and some blind spots. In the exchange of objectives via the U.S. Mail, each teacher came to acknowledge a bit more of his expertise and also his limits. Each had something to teach, but also something to learn from the others.

Teacher A - Quality and Time -

Teacher A jumped on the objectives of teachers C, D, and E for lacking any conception of quality and time.

He did admit that his objectives needed more life to make them more interesting to the life style and hazy career goals of his students.

Teacher B - Format and Analysis

Teacher B was congratulated by the group for having devised a format which emphasized the three essential elements of a properly written objective. In general, most of the six teachers approved of the simplicity and clarity introduced by his approach.

Further study of his objectives revealed a few errors that could be easily corrected by proper editing :

- "to factory specifications" should be in the EXTENT and not in the PERFORMANCE section

- "and normalize the engine" should be a separate objective and not tied on to the adjustment of the idle.

This last suggestion was not accepted by all. Some felt it should be an integral part of the idle adjustment while others felt that, for learning purposes, the two should be separate.

As the objective was further analyzed, some felt that safety rules were common to all operations and should be made into separate objectives that could provide the introductory classes in all occupational areas.

acher C - Relationship Between Education, Skill, and Income -

It was quite obvious that teacher C d not have much trouble motivating s students and trainees. He himself ied to oversimplify his approach which aced quite a bit of emphasis on getting job employing the skills learned.

The source of student motivation s not so much money as the growing sight teacher C developed in his udents that school can improve ills. Their own practical work perience showed them that skills mbined with knowledge of on-the-job portunities can help a person vance up a career ladder.

In retrospect, teacher C did admit hat he actually used other bases for is grades and report cards then student alaries. He also felt that in this rea he had been helped by the free xchange of objective criteria now asily available from the other teachers.

eacher D - Affective Domain -

Most of the other teachers had taken ttitudes for granted. It had been assumed hat the student would naturally pick up hese necessary components of successful unctioning in a job.

Teacher D did admit that he needed bjectives in the cognitive and psycho- otor domains. Until now he had never ad a readily available source of them. ather than have to write all of them imself, he was quite happy to profit rom the work of the group.

Similarly, the group was quite interested in the various ways he had accumulated a vast array of practical ways to instill punctuality, cooperative work habits, teamwork, safety consciousness, acceptable appearance, honesty, trustworthiness, care of tools and equipment, compatability with fellow workers and supervisors, responsibility, industriousness, and record-keeping.

Teacher E--Cognitive Domain

Most of the other teachers were impressed by the vast scientific background of E. He had built up a collection of workable slides and models which the other teachers wanted to borrow to use in their explanation of the scientific principles underlying the everyday auto repair skills.

One university and one publishing company approached E and asked him to set up a common core for all occupational students in physics and to write an illustrated text stressing skill and understanding.

Teacher F--Customer Satisfaction, Job Families, and on-the-job Training

The explanation made by F that students really need little more from a course in auto mechanics than the ability to learn on the job was not accepted at all.

However, his concept of job families was seen as an inevitable outcome of the fact that most humans do want a bit of change after polishing a skill to the point that it can become merely a dull routine from which repetition has removed its first glamor.

# CAREER GOALS : A Self-Initiated Individual Choice That Usually Takes Time

It is almost a commonplace that students educated in a particular career often find employment in an entirely different career. This has led to two approaches to bridge this gap between training and entry job. One approach tries to stress career families and clusters. The other tries to stress self-initiated activities and goals for students within the existing occupational programs.

There is much to be said for teacher-imposed objectives in skill areas. There is much to be said for self-initiated activities to motivate students to learn up to their full emotional and human potential. Career goals are often clarified in an atmosphere which equally emphasizes personal choice and skill acquisition. Any system of performance objectives must take account of objectives that originate from students as well as from teachers.

Career Goals

Career Education tries to stress the dignity of work and the dignity of the individual. The dignity of work implies that any job can be done in a manner which will make the worker worthy of respect and consideration as a human being; such a perspective does not condemn any job as being inherently degrading; it tries to stress the necessity of the worker to strive after quality performance and to stress the necessity of the employer to provide humane working conditions.

An Important Distinction develops when one considers the dignity of the individual. Each individual can differentiate between the curriculum he was taught and the curriculum he learned. Sometimes, the two were almost identical as in the case where the learner accepted most teacher goals; often, the two are quite different as in the case where the learner chose his own career goals or went beyond those proposed by his school teachers.

The Job Market and the Occupational Curriculum do not always speak the same language. Sometimes, it is a difference of terminology; e.g. a two year program in auto mechanics may mean one thing to a school and quite another to a prospective employer of the school's graduates. There can be differences in units of measurement; a score of 92% in an engine theory exam does not always mean that the successful student is able to change a spark plug properly; similarly, failure in a school exam does not always correlate with failure in an entry level job. There can be differences in technology; the situation wherein the on-the-job typewriters are manual whereas the school teaches only on electric machines is just as bad as the reverse situation wherein students trained on manual typewriters must spend a period of adjustment getting used to electric machines.

The Model Proposed is quite simple: if both the school and the job market can specify student goals in terms of what he can do, then both will be speaking the same language.

The Dimensions Involved in this model cover a number of continuums which are often perceived as dichotomies:

- o student-initiated and teacher-initiated classroom goals
- o local and national norms
- o exploratory and structured programs
- o goals achievable in the library and goals achievable through travel
- o on-the-job and theoretical training
- o volunteer and military service and its relation to campus life
- o correspondence study and classroom instruction

Trying to Do All This demands a simple and uncomplicated system that can be understood and adopted by busy classroom teachers. Here are some of the elements:

- o local curriculum decisions: What do we want to teach? Why?
- o local course structures: How will we do this? When? For how long?
- o feedback among groups of teachers: What are they doing elsewhere?
- o determination of local goal styles: Are our needs the same as elsewhere?
- o development of evaluation instruments How will we know we have succeeded?
- o external validation of effectiveness: Are our graduates doing well?
- o realignment of local program goals: What do we have to change to improve?
- o development of more relevant career options: Where do we need updating?

The following pages spell out these problems and the options available when teachers try to find out what others are doing in the same course to make their instruction more relevant and effective.

## Career Education

Career education can mean a number of things. It can be anything from a few brief minutes of vocational guidance to a three year curriculum. This has been done in a number of ways to reduce the paradox which seems to sum up the unemployment problem (workers without jobs) and the mismatching problem (jobs without workers).

One of the puzzles about career education arises from another fact: many graduates find careers and personal satisfaction in jobs for which they were not formally prepared. Sometimes, this happens in their second or third job; this can be explained by experience convincing them that their first choice was wrong. Sometimes, this happens in their first job; maybe, the job market did not have any other opening. Neither explanation is entirely adequate.

## An Important Distinction

There is another way to look at this apparent mismatch. When one says that a graduate finds a job in a career area outside of that in which he was trained, one is saying, "The graduate was trained in teacher-imposed goals for a certain career; after school was over, he took a career he chose in different areas."

Rather than debate the relative merits of the above two explanations of flexible choice and high demand, there are other possibilities. It might be asked whether there is a correlation between career choice and those skills learned by students through self-initiated choices while in occupational and vocational programs. In every career program, there are a number of objectives that are selected and implemented by the teacher; these teacher-initiated goals are those which are recorded in the student academic record. In every career program, there are other goals which have been freely chosen and implemented by the students; these are self-initiated goals which play an important part in career choice even though they never do appear in the typical student record. It might be interesting to have a way to integrate both self-initiated and teacher-imposed goals into the academic credentials of individual students.

It is not hard to find current research which points out the low correlation between career programs studied in school and later career choices. If a distinction were made between self-initiated and teacher-imposed goals, perhaps it would be possible to find a higher correlation between what was learned in career education and subsequent employment. It might be found that there is a very high correlation between self-initiated goals in career education and the application of these life skills in a specific career.

## Looking for a Way to Do This

Units of measurement are always important. There are times where a yardstick is accurate enough, and there are times when a micrometer is not. Much depends upon the availability of data and the uses to which it must be put.

In a society which does not have a large number of highly specialized entry level jobs, it might be enough to be "a high school graduate and ready to learn." In a situation where the tasks to perform demand a certain amount of specialization, it might be enough to be "a graduate from a one or two year program in auto mechanics. As one goes higher up the ladder of specialization, it becomes more and more imperative to have specific marketable skills along with general life skills.

One of the more general life skills necessary for success is the ability to learn. Another one is the ability to choose goals for oneself. Another is the ability to compete and succeed while still maintaining a team spirit.

Entering the job market can be compared to a life skill situation wherein one person (the applicant) has to convince another person (the employer) that the applicant has something (a specific skill or the ability to learn quickly and efficiently) that the employer wants.

The employer wants to use the skill or ability of the employee; the employer does not want to use or abuse the employee. This demands that the employee give the impression that he will be happy to function on the job. Sometimes, this is quite easy as in the case of the applicant who has had a similar job; all the employee has to demonstrate is that he will fit into the new career.

Without trying to be philosophical, it can be advanced that of a skill or a job is something a person can do while a career is something a person wants to do over a reasonably long period of time. A person will take a job to make money, to have security, or merely to kill time. A person will choose a career because something inside him tells him or her that here is a chance to grow and develop in a personally satisfying way. A career is a choice.

An Illustrative Example

Two students walk in for a job as an auto mechanic. They both have high school deiplomas. They both are graduates from the same two year program in auto mechanics. There are a number of things that can influence the selection of one or the other.

If the person to do the hiring is rushed and impressed mainly by academic credentials, he will choose Greg over Frank because Greg received a straight B while Frank received a straight C in auto mechanics. If the teachers of Greg and Frank graded their students on theoretical knowledge, this could lead to complications if the entry level work is mainly on the level of specific skills to be done over and over again.

If the person to do the hiring were interested strictly in the test scores of applicants, he would choose either Greg or Frank according to their scores on his favorite testing instrument. Since many of these examinations are really disguised general ability estimators, they often function quite adequately since they can pinpoint people capable of learning on the job. If the job does not have too much rapid advancement potential built into it or if the applicant has a very high score, it is possible to have the majority of jobs going to over-qualified applicants who will not stay too long on the job either because of better opportunities elsewhere or because of discontentment from a lack of challenge and personal satisfaction.

If the person to do the hiring were interested in what the applicant can do and wants to do, he would have to find out much of this information for himself. High school transcripts and examination scores do not provide too much information to answer this question. At the present time, not many schools provide much information to answer this question. Few if any schools provide academic credentials which spell out in clear and precise terms exactly what a student can do. They specify how much time he spent in certain classrooms and under which teachers he studied. In many cases, this does not correlate too highly with performance on the job.

Many a graduate of a technical program is denied the chance to develop on-the-job experience because he has no previous employment experience to convince a prospective employer that he can do a certain job well. This type of situation can leave the applicant desperate enough to accept anything that turns up. This approach is not a good basis for a career choice; serendipity is nice but it should not be relied upon as a steady diet.

Business, labor, and schools have tried to cooperate for a number of years. The difficulty lies in the unit of measurement and in terminology.

## Terminology and Units of Measurement

Business speaks in terms of jobs, job descriptions, things to do, products to make, procedures to follow, and cost-consciousness.

Labor speaks in terms of careers, personal satisfaction, human rights, the dignity of all kinds of work, job security, and adequate compensation.

Schools speak in terms of courses, grades, academic standards, credit hours, prerequisities, attendance, and curricula.

Upon first glance, it is obvious that each of these three sectors has been presented in a very limited perspective since there is more common terminology than that listed above. However, this example is presented to point up the possible difficulties that can arise when the school says that Greg and Frank are graduates of a program in auto mechanics and the business world says that there is no difference in their success on the job when compared to Tom and Bill who had no auto mechanics training whatsoever.

Another difficulty arises from the way in which jobs are announced. The employer announces that he wants an auto mechanic with three years experience. Taken literally, this want-ad will not make much impact on a graduate of an auto mechanics program who could do everything the employer reasonably expects of an experienced applicant.

## A Common Language

At the present time, computerized job banks are being organized around the country. They list job requests from a number of sources in an attempt to bring together the needs of the business world. Since these jobs are listed by job title, one should exist a rough approximation between job titles and educational career programs.





There is a way to make this correlation between job demand and educational output more exact. It is to answer a very simple question that often goes unasked, "What exactly is needed for this entry level job?" The easy way to answer this question is a general reply such as "a college graduate" or "a high school graduate" or "a graduate of a two-year program in auto mechanics" or "someone who scores high enough on the qualifying exam," or "an auto mechanic with three years of successful experience." In its own way, each of these answers is too general. Each fails to pinpoint exactly what skills or ability to perform are essential to the position in question.

If teachers could begin to list their course objectives in performance or behavioral objective terms, if employers could start talking of jobs in terms of tasks to be performed, and if these two listings could be correlated and interrelated, then things could open up; students would find themselves in much more autonomous situations, educators would be able to plan according to a more reliable awareness of the world of work, and the entrants into the world of work would find the transition from school to career much smoother.

This would permit the listing of job titles by specific abilities to do certain things. If it were deemed necessary, the examinations could be developed that would verify the attainment of certain objectives by prospective employees. Rather than rely upon general terms such as "auto mechanic" or "auto mechanic graduate," a list of titles correlated with achieved objectives could be developed which tell clearly what the person can do.

Career education could then take another shape. Rather than specify that a person must spend a certain amount of time studying a certain subject, it could articulate a system whereby a person was judged on his ability to perform or to render a certain desired services no matter how or where he learned them. Such objectives would be measured by performance tests which are quite different from general aptitude tests. The gains score of a performance test has a different focus than that provided by distribution of a general aptitude scale.

Expanding Program Dimensions

The discussion so far has centered on the possible results from shifting from teacher-initiated goals to self-initiated goals coming from the expressed interests of students.

Self-initiated Student Goals: At the present time, there seems to be a very low correlation between occupational programs studied formally and later career choices. A stress upon student-initiated goals instead of the traditional teacher-imposed goals would suggest that there is a higher correlation between career choice and what a student decides to learn for himself than there is between career choice and goals chosen by teachers.

Lest this seem to over-simplify the situation, it would be appropriate to list a few other dimensions that could aid the average student to a realistic career choice. This listing does not intend to be all inclusive since many other variables could be added to it. At the same time, it must be recognized that there do exist students who do better with teacher-imposed goals than with self-initiated activities for the very simple reason that some students have never been taught how to think or decide for themselves. The type of program that it is hoped will evolve from this discussion is one which will be applicable to a wide spectrum of students; it is not the goal of this approach to develop a system that will work only if for the most independent third of the typical high school or two year college class.

Local Vs. National Exams: In the typical classroom, there will be students who have no intention or idea of going outside the local community for work. Next to these students will be others who have dreamed of and planned for nothing else.

If only local exams were used, then the student in need of national standards would be left unprepared for the type of job he will find outside his hometown.

If all students are made to prepare for the national exams, then it could easily be expected that a student who could function perfectly well in a local setting would unnecessarily be exposed to a testing situation that could become as traumatic as it is needless.

Exploratory Vs. Structured Curriculum: Some students need a strong teacher who is able to direct them to predetermined goals which are not always intrinsically interesting to a young and uninformed student. Other students need an equally strong teacher who can get them motivated on a number of areas about which the typical student couldn't care less.

In essence, the exploratory curriculum is one which allows the student to "mess around" until he comes up with an interest that can be correlated to future goals. Sometimes, these goals are directly tied to career; at other times, they are more directly linked to interests and curiosity.

In this domain, two needs seem to recur. Teachers who have spent a good deal of time parceling out knowledge in understandable doses often need to learn a few simple ways to loosen up their lesson plans to leave room for mechanical curiosity and for intellectual curiosity. Teachers who have stressed the open classroom are always in need of new and exciting ways to structure and reshape experience into communicable understanding.

Library Vs. Travel: There are students who learn a lot through travel almost without realizing how much they have picked up. There are other students who need books and libraries to make similar discoveries. Many students learn both ways; something must be done to provide a systematic way of keeping tabs on what is learned and how to measure it.

The phenomenon of learning is much more important than where and when it occurred.

School Vs. Correspondence Courses: For a variety of reasons, e.g. physical handicaps, difficulty of travel, age, or personality variables, there are students who learn better at home than in the typical classroom. It seems that, from the point of view of educational gaols, it is more important to be concerned with what is learned than to be concerned with where a thing is learned. The same maxim applies to school away from home.

Here it becomes obvious that a non-resident degree program has many possibilities for the student who is exposed to more than the mailman for his contact with the world of education. Correspondence would be one means, but in the world of T.V. and other media, it should not be limited only to first-class mail. There is plenty of room for tapes, records, filmstrips, cassettes, photos, films, and other media.

Volunteer Service and/or Military Service Vs. College: Once it is agreed that a college diploma is not the only way to enter the job market in a responsible and respectful way, the door is open to a wide variety of effective ways to learn. The world of volunteer work allows a student with a humanitarian bent and few specific skills to start doing something that will stimulate him or her to ask the following important career question: "What do I want to do with my life?" Such a question answered on a short-term and eventaully on a long-term basis before post-secondary formal schooling will go a long way to motivate the individual to think out a career plan based upon a firsthand experience of his abilities and attitudes in real life situations.

Rather than develop a dichotomy of Job Vs. College, it might be better to apply the dichotomy of "Post-Secondary Education Immediately after High School" Vs. "Post-Secondary Education after a Job or Comparable Experience." Perhaps, a year or two of non-schooling will allow the high school graduate to mature a bit before making the decision to go on to college.

Theoretical Vs. On-the-Job Training: There are students who find language instruction absolutely essential before they try to go to a foreign country to function in the foreign language. There are other students who prefer to spend a few weeks in the foreign country picking up the foreign language by ear until they feel ready to study it formally.

Who is to say which approach is better? What might work for one person won't always work for another?

The same thing would seem to hold true for theoretical and on-the-job training. The requirements of each person will vary according to individual needs, abilities, interests, and previous experiences.

Overview

Having looked at these dimensions, it seems obvious that any educational system that hopes to meet the needs of tye typical student must be ready to respond to a variety of typical students:

- Some will learn better in self-initiated and self-chosen goals; other will work better under the hand of a competent and directive teacher who will decide what is to be learned and when.
- Some will be discouraged by national exams while they will be enthused about learning what is necessary to get a job downtown; others will not work up to capacity or up to their dreams unless they have the challenge of a national exam driving them on.
- Some students need to mess around to get in the right frame of mind to learn; others need to have their career itinerary clearly spelled out for them each step of the way.
- Some students will learn more from travel during summer vacation than they did all year long; others need to read everything they learn.

- Some students will learn quite a bit studying on the dining room table and never going to school; others need to get away from home to really "hit the books."

- Some need a few years to decompress after high school before going on to post-secondary instruction; others will never make the effort if they don't go immediately after high school graduation.

- Some need to learn the theory before the applications; others can never make sense out of the theory until they see it in practice.

## Trying to Do All This

Such a brief presentation has pointed up the difficulty of keeping any educational system simple and uncomplicated. However, there is still one final obstacle: unless any educational system is both uncomplicated and sensible, it will never be adopted by teachers or by students.

This paper proposes that much of the work in education can be simplified and rendered sensible or relevant by stressing objectives. Much has been written recently about the need to specify in performance or behavioral terms all goals or objectives to be attained in a course. There are many advantages to this approach. However, there is too much paperwork to leave enough time to change teaching and learning. There is a definite need for a method of improving classroom instruction and learning without having to take a course in creative objective writing.

Here is a suggested approach which can be carried out on a large scale without unnecessary complications.





## Step One

### The Local Decision Process

In each local educational agency, teachers will get together and decide what are the most important goals of each program and of each course. The first few meetings will probably result in long lists of highly specific objectives. More time and discussion will probably concentrate these into a half dozen or more highly refined goals for each course.

It is presumed that these course objectives will represent both national, state, and local needs. In cases where each teacher of different sections of the same course has different goals that cannot be united up in a summary goal, each goal could be considered for the feedback system.

## Step Two

### Structuring Courses for Feedback

After each teacher has presented his or her goals, the goals are entered into the feedback system. An example may help visualize what happens here.

Teacher A chooses goals 1, 2, 3, and 4 for his course.

Teacher B chooses goals 2, 4, 5, 6, and 7 for his course.

Teacher C chooses goals 1, 2, 7, 8, and 9 for his course.

Teacher D chooses goals 2, 8, 10, 11, and 12 for his course.

Teacher E chooses goals 7, 8, and 12 for his course.

As can be assumed for purposes of discussion, the goals here are presented in terms of code numbers only. This is done to stress the functioning of the feedback system rather than the content of each goal. Obviously, goal 2 chosen by teachers A, B, C, and D is the most frequently taught goal for this course. This type of information would always be valuable both to those who teach goal 2 and to those who do not teach it.

Step Three

Feedback Manipulations

The data submitted to the feedback system tells a number of things:

For example, teacher A has the following curriculum in terms of performance goals:

Goal 1
Goal 2
Goal 3
Goal 4

Similarly, teacher A has the following curriculum for the same course:

Goal 2
Goal 4
Goal 5
Goal 6
Goal 7

The system is based upon the assumption that each goal number is mutually exclusive. Further study of goals 6 and 7 may reveal that they are nothing more than a breakdown of what is in one school is called goal 1. On the other hand, it may be found that the circumstances and the approaches used to determine the criteria for these goals make them pragmatically dichotomous from each other.

Using "X" to identify teachers with a particular goal, this material can be graphically summarized:

| TEACHER | A | B | C | D | E | TOTAL |
|---|---|---|---|---|---|---|
| Goal 1 | X | | X | | | 2 |
| 2 | X | X | X | X | | 4 |
| 3 | X | | | | | 1 |
| 4 | X | X | | | | 2 |
| 5 | | X | | | | 1 |
| 6 | | X | | | | 1 |
| 7 | | | X | | X | 2 |
| 8 | | | X | X | X | 3 |
| 9 | | | X | | | 1 |
| 10 | | | | X | | 1 |
| 11 | | | | X | | 1 |
| 12 | | | | X | X | 2 |

There are a number of details that can be learned from comparing goals and type of schools.

For example, it might be found that teachers A, B, C, and D who teach goal 2 are in rural communities. It might be found that goal 8 which is taught by teachers C, D, and E is used mainly with potential dropouts. It might be found that goal 6 which is taught only be teacher B is for areas in which there is high unemployment. It might be found that goal 11 which is taught only by teacher D is for areas in which there is only moderate unemployment and even a scaricity of certain job titles.

These are only a few of the possible conclusions to be available once schools find a way of communicating their principal goals to one another.

Step Four

Determining Objective Characteristics

The types of questions asked above will determine the analysis needed at this level. This will include such characteristics as are needed to answer the following and other questions:

- Which objective is most frequently taught in this particular course?
- What is the ranked order of frequency for objectives taught in this course?
  - in large cities
  - in average cities
  - in small cities
  - in BOCES
  - in large schools
  - in average size schools
  - in small schools
  - in public schools
  - in private schools
  - for school of type "x," "y," or "z"

- With what type of student has this objective been most successful?
- What special circumstances promote or hinder the attainment of this objective?
- Which teacher characteristics foster or hinder this goal?

There are many other charactertistics that could be extracted from this feedback data once objectives are compared and cross-referenced.

Step Five

Developing Evaluation Instruments

Once the objectives have been codified and cross-referenced, the example herein cited gives the following tally count:

| Goal | Number of Teachers | Number of Students |
|---|---|---|
| 2 | 4 | 105 |
| 8 | 3 | 89 |
| 1 | 2 | 57 |
| 4 | 2 | 59 |
| 7 | 2 | 84 |
| 12 | 2 | 61 |
| 3 | 1 | 15 |
| 5 | 1 | 4 |
| 6 | 1 | 17 |
| 9 | 1 | 20 |
| 10 | 1 | 23 |
| 11 | 1 | 14 |

In the format herein explained, the addition of student enrollment data would not require more than the addition of two or three digits to each course goal code. It has a number of advantages in determining which objectives ought to be given most attention when developing evaluation items.

According to the information above, it is most likely that goals 2, 8, 1, 4, 7, and 12 would be used to construct sample test items with a variety of item forms. The remaining other objectives would not be neglected, but time given to them would be in proportion to the number of schools, teachers, and students using these course goals. If there were instances of only one teacher and a half-dozen students pursuing a particular goal, the goal would not be omitted; however, it might be deemed more practical to have the teacher concerned himself construct the test items to measure his goal. This information would be then available to other teachers who in turn might find that this goal originally chosen by only one teacher was indeed worthy of a wider use. This is how progress is sometimes made. Once such a need has been recognized, more attention would be given to it in proportion to the added emphasis given to it by the best judges for course objectives.

Step Six

Realignment of Local Programs

There are a number of ways to get local teachers to change classroom goals; force, pressure, funding, prerequisites, certification requirements, direct constraint, and many others have all been tried with a wide variety of reactions.

The idea envisioned in this feedback system is quite simple: a teacher is a professional; a professional makes judgments based upon his specialized knowledge and the best facts available. The feedback available through this proposed system will give the teacher information heretofore unavailable for course content decisions. It is hoped that such action will be on a professional level and without any constraints except those posed by the competence and insights of the teacher concerned.

Step Seven

Correlation with Graduate Careers

There are a number of questions that can be asked about the career patterns of successful and unsuccessful graduates.

- What job skills are graduates of a particular program using on the job one year after graudation?
  - Are these skills related to the goals of occupational programs studied in school?
  - Are these skills related to objectives students learned on their own initiative either inside or outside their regular school programs?
- How well does on-the-job success correlate with success in school occupational programs?
  - Where does attainment of school occupational goals increase on-the-job success?
  - Where do on-the-job requirements not correlate with school program requirements?

The answers to these and similar questions can have a significant bearing on the improvement of career programs. In their own way, these questions answer the more fundamental inquiry:

- Are our occupational programs relevant to student and to job requirements?
- Which aspects of our programs need to be up-dated?
- What specific changes are possible in our particular circumstances?

These questions are not always easy to answer. They type of feedback provided by the proposed feedback system is intended to provide some of the necessary data sources to answer these questions.

Step Eight

Development of Career Options

An examination of many occupational programs reveal several facts:

- Any student who is able to choose his career early in life will find much valuable preparation in the typical occupational program.
- Any student who develops in school the ability to learn on the job is sometimes more successful in a particular occupation than graduates of a complete program in the same area.
- Any student who develops a lively interest in a particular career or skill area is often able to learn quite a bit on his own even without enrolling in a particular formal program.

This is the way many programs are organized. Similarly, many occupational teachers are aware that there are other students whose needs are not being met. These are the students who are not certain about their future; some don't even seem to care. These are the students who are not too successful in any area of school; sometimes, it's motivation; sometimes, it's ability.

There are teachers and programs that have broken through these barriers. Many of these programs could work elsewhere if they were disseminated in a format specifying three things:

- What these programs do
- What these programs get students to do occupationally
- How these programs are evaluated

There is the type of feedback desired by the system herein proposed. Many teachers could improve their classroom performance if they knew what other teachers were doing to make instruction more relevant in the same course.

AWARENESS: The Possible Advantages and Implications of This Systems Approach Coordinating

- Classroom Teaching
- Evaluation, and
- Feedback

Once a school starts thinking about performance objectives, one of the first questions it asks is "What benefits will our school receive from all of this extra effort?"

Once a school starts making specific plans about writing performance objectives, it begins asking another question, "What will happen to all of the work we have put into the project?"

There are many answers to these questions. The following pages are intended to give some idea of the dimensions that begin to emerge whenever a school starts thinking in terms of a systems approach to classroom instruction. A systems approach simply means going beyond piecemeal decision making.

It must be remembered that each local educational agency will have its own individual adaptations. This listing is only indicative of what to expect in the typical case.

Specification of Course Content

Writing a curriculum in performance objective terms is not an easy task. This is a job that takes much time and effort. Here are a few of the benefits that could result from this extra effort.

Schools could identify their course content by specific behavioral objectives instead of by vague general descriptors. Much of the traditional fuzziness in course description would be removed if this approach were used.

Both teachers and students would have a clearer idea of exactly what is expected of each other. Employers would have better guides as to exactly what would be meant by such things as a high school graduate. Rather than specifying four years of attendance, a diploma and transcript would indicate the ability to perform certain activities.

A typical result: Course titles could convey more content information. Stenography I might be renamed Non-Legal Stenography; Stenography might be renamed Legal Stenography if the goals attempted justified such a change.

More Relevant Instructional Goals

Relevance is a word with many different connotations. Basically, relevant instruction is instruction that has some significance or meaning for students, teachers, and society. Irrelevant instruction is just the opposite; it has lost its meaning or importance.

It is an educational truism that instructional procedures which were once relevant can become irrelevant with the passing of time. It's not so much that the instruction has changed; the times have changed and left it behind.

A typical instance: Broad general educational goals are so vague that it is often possible for these goals to remain officially unchanged even in the midst of dramatic classroom changes. The reason is simple: these goals are often so imprecise that it is difficult to know specifically what they envision for student emplementation; goals are often so ambiguous that diametrically opposed student performances can be included under the same umbrella.

Stating a goal in performance terms means that the anticipated student performance is unambiguously stated. Thus, when a different student performance or accomplishment is desired, the goal must be reformulated accordingly to reflect this change of aim.

Revision and Updating of Curricula

Some schools feel it is easier to restrict changes in their curricula to a half-dozen clearly defined performance objectives that need updating rather than to start all over again from scratch.

This does not mean that only surface change will result. It means that a clearer distinction will be made between long range strategies and short range tactics.

Similarly, curricula committees would realize the need to revise yearly rather than merely conducting self-studies every half dozen years or so.

A typical example: Rather than completely revamp the curriculum when a new process is developed, it would be possible to pinpoint all those objectives which involved the now outmoded procedure. Each of these goals would be modified in such a way as to incorporate new tech technological advances. In this way, classroom instruction would be kept up-to-date.

## Modules Instead of Semester Courses

In the middle 1800's, the typical curriculum was conceived in terms of a year's work. In the late 1800's, the typical program was broken down into an assembly of one semester or two semester courses, each of which contributed to the desired end-product.

Sometimes, a one-semester course covers more subject matter and objectives of a particular student. The trainee finds himself in the situation of being obliged to take an entire one semester course when all he really needs is the mastery of a half-dozen related performance objectives.

It is not always easy to specify how much of a course a student needs to be ready for entry-level employment. One form of developing these specifications is known by the name of "performance objectives." When a group of related performance objectives are grouped together in instructional unit, a "module" emerges. As selfstanding blocks, modules provide a flexibility necessary to prepare students for more precise career ladders.

A typical example: Students who will need only two or three basic welding skills have often had to obtain them in the past by taking a one or a two semester welding course. Rather than be forced into a situation where lack of motivation could lead to discipline or learning difficulties, a thirty hour welding module spread out over a six week period could do a better job. The particular welding skills, machine skills, or the like needed for performance in a particular field would be identified and taught in a concentrated minicourse. It would not be necessary to take full courses in each of these areas.



## Tests for Locally Developed Curricula

A curriculum spelled out in terms of performance objectives would be able to draw upon banks of correlated test items developed and pooled by schools and teachers with similar goals.

In the case of strictly local goals, the school staff would be able to spend more time constructing test items designed solely to measure local goals. Since each of these newly constructed items would be attached to a specific instructional objective, each student could receive more than a total test. Each trainee could be able to obtain a profile and a detailed analysis of strengths and weaknesses.

A typical situation: A teacher of Auto Mechanics would obtain 60% of his test items from other schools covering the same general goals. 30% of his test items measuring local goals would be selected from local files. 10% would be constructed by him to measure his own individual classroom objectives introduced for the first time during the current school year.

## Articulation and Feedback Between Schools

Similar programs teaching the same performance objectives in different schools sometimes have different names. Similarly named programs in different schools are often quite different when attention is focused on performance objectives actually taught and evaluated. In other words, course names do not always provide a good starting place from which tow or more teachers can start comparing notes.

Real feedback and program improvement will be more likely to occur when course objectives rather than course names are used as the basis of comparison. In this way, schools could help one another.

A typical example: Teachers of the same course could spell out their principal instructional blocks. These could be further subdivided into units. Once the contents of each unit are spelled out in terms of student skills, comparison would be much easier.

## New Curricula

Some schools will not consider requests to introduce new curricula unless these proposed curricula are spelled out in performance objective format. There are several reasons for this procedure.

This makes it easier to avoid unnecessary duplication. It also avoids ambiguity about exactly what is being added to the curriculum. It enables members of various specialties to consult interdepartmentally. This in turn fosters an interdisciplinary approach.

A typical approach: When certain new technology programs are spelled out in understandable and non-technical language, it is possible for existing departments to interface with the new courses in a cooperative and mutually beneficial fashion. If curriculum additions had been presented in jargon, such collaboration would have been less likely to occur.

## Course Prerequisite

Traditionally, course prerequisites have been expressed in terms of courses or course numbers that must be taken before a particular course.

It sometimes happens that students who habe taken a particular course do not have all the specific skills needed for the next course in sequence.

To prevent this, some schools are spelling out prerequisites in terms of specific performance objectives to be met rather than in terms of course numbers.

A typical example: Rather than demand the successful completion of Typing I before allowing a student to take Typing II, it would be possible to specify in each local situation exactly how many words per minute the student must be able to type before being admitted to the next course in sequence.

Such a change could have numerous repercussions on the building of career programs and course options since the danger of needless duplication is greatly reduced by precise terminology.

## Validation of Methodology

Hunches and serendipity play a role in teaching as in every other area of human activity. When one tries to develop a scientific approach to determine the validity or approiateness of a particular method relying on one's inner feelings is not scientifically enough.

One of the largest difficulties of validating innovative teaching methods is that the unforeseen results of instruction can sometimes outnumber the preplanned objectives. Such a situation is more like an exploratory investigation than a validity study. After sufficient brainstorming and creative discovery, the time comes when it is necessary to check out insights and intuition to verify their effectiveness in educational settings.

Rigorously defined, validity means that a particular method or technique has objective evidence that links it with the attainment of a particular goal. Validity does not mean that a panacea has been discovered which works equally well with a broad spectrum of objectives.

A typical result: When objectives are spelled out in performance terms, the results of methodological analysis will center on finding which means work more effectively in attaining certain highly specified goals. There will be no attempt to find methods which will "work" with any or all goals; there will be no attempt to find ways to "motivate" all students regardless of ability or personality to make progress towards vague general goals.

Similarly, when the desired goal is the exploration of the unexpected, ways will be found to achieve this global shotgun objective which has been defined. Along with the goal, definite criteria of brainstorming such as heterogeneity of response, freedom of expression, and attentive listening will be specified; no room will be left for the possibility of trying to measure creativity by tests which do not go beyond memory and recall.

Budgetary Support

Once a teaching-learning media has been found to improve learning, as measured by hard data rather than by teacher-pupil-salesman enthusiasm, it would seem likely that even the most cost-conscious school board would approve appropriations that yield a higher amount of learning per dollar in less time.

This is a simple application of the current stress on accountability.

A typical example: Funding bodies are notoriously slow to approve "lump sums" even for the most worthy of goals. When teaching expenses can be justified in terms of "what students can now do as a result of instruction," it becomes easier to understand the consequences of approving or disapproving a line item on a school budget.

It would not be inconceivable that the consequences of not funding a particular objective could be demonstrated to be even more expensive in terms of wasted potential human development.

Publishing Support Beyond Textbooks

Once commercial textbook and media producers are informed of what is needed, they will be quick to solve the media support needs of those performance objectives having the widest market appeal.

It is anticipated that a very practical and simplified coding system will be developed to tell teachers at a glance what is available to make their teaching more effective.

A typical example: A teacher of auto mechanics (A-MECH) to students of average (AVER) ability who is beginning a unit on engine (ENG) inspection (INSPECT), will simply print the following on a computer card: "A-MECH, AVER, ENG, INSPECT, LIST, PRICES." LIST tells the company that he wants a computer print-out list of available materials. PRICE tells the company that he wants an itemized price list for appropriate materials helpful to teach this unit.





Local Media Support

The school library and the local audio-visual department will be helped by such classification systems. They will be able to identify literature and periodical needs more precisely. In situations where the budget is tight, the number of students pursuing a particular objective will be able to be taken into account when allocating funds for new items.

Many of the locally taught course objectives will be backed up by media commercially available. This will leave the local media staff with more time and money to devote exclusively to meeting local needs. They will not have to duplicate areas that can be handled more economically by larger production teams.

A typical example: Rather than spend a vast amount of time preparing slides and visuals for those sections of the agriculture course which are taught in many other centers, the local media staff can concentrate on turning out visual aids and documentation which stress local demands. In the case of objectives which might be taught only in one area of a county, this could represent audio-visual aids and support for objectives that might otherwise be overlooked.

Individualized Instruction

Once the curriculum is thought out in terms of performance objectives and capabilities instead of in terms of courses, the high school counselor is in a position to allow for individual differences by the flexibility permitted after the achievement of each objective.

A typical benefit: When such a redesign is complete, it would be possible for a student to learn at a rate that maximizes the benefits of instruction because it takes into account the learner's most effective style of learning. Teachers have long sought such approaches which deliver tailor-made instruction. A systems approach is one way to get this cherished goal.

## EDUCATIONAL TECHNOLOGY

A typical misapplication of the concept of educational technology has resulted from equating technology with audio-visual aids. Distortions arise because this type of interpretation tends to think too much of technology as equipment.

A more scientific concept of technology goes beyond the hardware level. In education the complement of hardware is not software so much as it is "brainware." Brain-power in educational technology goes beyond the individual teacher teaching alone, isolated in his or her classroom and unassisted with tools beyond textbooks and chalkboards.

New methods of education have to be backed up with new technological advances on a level higher than physical equipment. Such things as team teaching, modular instruction, and the open classroom should be received as technological advances. This perspective goes beyond the gadget level.

This step is logical once course goals have been spelled out in performance terms. When technology enters the performance scene, diverse roles emerge as a part of a system where everyone does his part and where a group of people fulfilling different roles work together for a common goal.

Such an approach is particularly advantageous to the school system that starts functioning as a system rather than as autonomous units unaware of what the others are doing. On a broader scale, such a systems approach could conceivably develop cooperation and mutually beneficial feedback between all the school systems in an area, in a state and eventually in a collection of neighboring states.





## INDIVIDUALIZED TEACHING

Much stress has been given to the individual student curriculum. Such an approach is based upon the simple acknowledgement that each individual student learns in a different fashion. One of the reasons such an approach to personalized learning has not always succeeded as expected has been the obvious fact that differences in individual teachers have not always been recognized in terms of teacher function, teaching load, and personal teaching style. In other words, all teachers were considered to be practically identical in their teaching style and capabilities, the only difference being subject matter.

Individualized teaching is an attempt to recognize that teachers as well as students have their own individual approaches. Some teachers are good at lecturing to a very large group and can use their semi-charismatic speaking ability to present basic subject matter. Other teachers function effectively only in small groups where their personal contact enables them to achieve many worthwhile educational goals. Other teachers who have not been particularly effective in the instructional aspect of teaching have developed great competencies in such things as test construction and grading.

Once in a while, one meets a teacher who combines all three of these above roles and abilities in one person. This is rare in spite of the fact that the typical classroom sometimes seems to be based upon the assumption that all teachers can function equally well in all three of the above roles.

Individualized teaching simply means that differences between teachers are recognized when a teacher is assigned. Much more than subject matter must be considered in such a way that teachers are assigned to tasks according to their professional skills and accomplishments. A clear statement of course goals in performance terms will go a long way towards ascertaining the teaching styles of individual teachers.

## PERSPECTIVE: Possible Distortion of Performance Objectives and Suggestions on How to Use These Objectives Properly

When an educator starts asking two questions,

- "Why should I write performance objectives?" and
- "Why don't the objectives I write work as well as I expect?",

consideration as to the use and misuse of performance and behavioral objectives has begun.

The format used below to answer these questions is divided into two columns:

(1) the possible distortions that can arise from a misinterpretation of the nature of performance or behavioral objectives, and

(2) the corrective perspective necessary to remedy these misapplications.

Each of these sections is based upon practical difficulties encountered when individual teachers started to write and systematize performance objectives.

| 1. Behavior |
| --- |

Since behavior here means observable results of learning, it is possible to fall into the trap of measuring only easily evaluated performance.

Advocates of criterion-referenced objectives recognize that not all long-term affective and cognitive goals can be easily measured objectively.

This still leaves open the possibility of improving evaluative instruments by explicitly employing concrete language to state what is meant by a particular goal.

All this goes back to the definition of a performance objective which is a statement of an education goal which tries to answer three questions:

- Exactly what is it that one wants students to do or perform or achieve as an instructional outcome?
- What materials and what procedures will best help the student to attain this chosen objective?
- What criteria will reveal when students are performing successfully?

Possible Distortions

Corrective Perspective

## 2. More Meaningful Statement of Goals

Performance objectives strive to express in clear and uncomplicated language the desired outcome of an educational process.

Sometimes, this is done in a fashion that discourages exploration of a variety of ways to achieve this specified result.

Sometimes, this is done in a way that forgets that certain methods are simply not acceptable socially or economically.

Such things as sample teaching procedures and sample test items are merely offered as examples of how to achieve a goal and how to know when one has achieved it. They are illustrative examples of goals and typical criteria; they are not ukases.

Goals should be specified. Once a teacher's goals are known, he can be judged solely on the success he has in achieving clearly spelled out objectives. Questions of philosophy, methods, and personality are seldom as observable as the results of good solid instruction.

It must be remembered that merely stating a vague objective in performance objective terms does not do away with the necessity to make philosophical judgments or reasonable cost analyses.

## 3. Limited Horizons

Once a goal is clearly thought out, whether it stresses minimum or maximum performance, it is possible to take it as the only norm of excellence. Other worthwhile but unwritten goals could be overlooked or neglected.

In an atmosphere that would stress competition and cost-cutting more than unlimited human development, it is possible to develop the attitude that supplementary and less visible goals can be safely overlooked since they are not as clearly observable as other more basic goals.

Properly understood, the function of performance objectives is to stress the main measurable goals of an educational program. Once these basic goals are attained, students will be properly prepared to go on to other worthy goals that could be of a less tangible nature.

The most visible goals of a program do not always contain all desired educational results. To think so would be to pretend that placing a match under a room thermostat is equivalent to providing adequate temperature control.

In weight control, the scale is an objective measure of loss or gain, but it overlooks the valuable areas of nutrition and balanced diet. The goal of personal development is difficult to measure. This does not meant that it should be overlooked.

| Possible Distortions | Corrective Perspective |
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| 4. Time-Consuming | |
| Actual data checks of writers of performance objectives in local educational agencies reveal that some teachers have spent more time writing objectives than actually teaching them.<br><br>Their time and efforts could be spent for more practical educational activities. | This suggestion, laudable as it may be from a research point of view, misses the point behind performance objectives.<br><br>Translating a curriculum into performance objectives is not so much a construction process as a selection process.<br><br>Once a bank of objectives is constructed, the teacher will be able to select appropriate objectives and to write from scratch those needed for local curriculum adaptations.<br><br>Even before this bank is available, a function of the teacher is to select what is most important among the terminal behaviors or performances he wants his students to possess. He is not expected to spend most of his time writing. |
| 5. Duplication of Effort | |
| It is conceivable that teachers in separate schools will spend much time writing the very same objectives in the same format.<br><br>If this process is repeated over and over again, needless duplication results. | Duplication can be prevented by the nature of the feedback built into a computerized system:<br><br>o feedback of the instructor's course objectives codified and classified<br><br>o feedback of related course objectives from other instructors and other schools similarly referenced<br><br>o feedback of objectives from courses with similar names, similar students, similar grade levels, and other helpful variables.<br><br>After a teacher has chosen objectives that have been codified into the system, it will be possible to retrieve teaching materials and testing items developed by other teachers teaching the same or similar objectives. This look at what others are doing should foster a fresh approach to teaching. |

Possible Distortions

6. Centralization

It is easy to imagine a teacher becoming intimidated by what the majority of confreres are doing in the same areas.

This could lead unwittingly to a centralization more penetrating and more rigid than any ever achieved by administrative fiats.

Corrective Perspective

Such abuse is always possible. On the other hand, much wasted effort results when a good teaching approach or test item developed by one teacher goes unpublicized and unused by other teachers.

Practical classroom discoveries are quite specific and often on a low level of generality. It happens that, unless such methods are tied to a specific objective, what works for one teacher will not work for another who has slightly different goals in mind.

With a centralized classification system, it is possible to pinpoint what works and what doesn't work to achieve a highly particularized objective. Teachers can share good ideas with one another even when they cannot always generalize to other goals.

7. Paperwork and Window-Dressing

Once a person has an answer to a previously unanswerable problem, it is possible to take the result of his challenging encounter and turn it into a technique that can be easily imitated even by people who don't understand it. This is how misapplications occur.

Simply re-writing objectives in performance objective terminology is not the same as re-thinking exactly what it is that one wishes to teach.

By filling in the numbers, it is possible for someone with no art training to reproduce the Mona Lisa. This example make it easy to see that there is often more to art education than merely the finished product.

A properly constructed curriculum expressed in performance objective terms can enable an instructor to benefit from many advantages:

- o clarification of his goals and how he can evaluate them
- o examination of the values upon which he chose present course objectives
- o presentation of goals to students in a form they can more readily understand

Possible Distortions

8. Too Much Detail and Not Enough Decision

In spelling out the desired outcomes of instruction, it is easy to get overly concerned with details and to forget essentials.

It is easy to get into a routine that stresses only those things which demand immediate attention such as tests and report cards while forgetting other more important things such as lesson planning and student motivation.

9. Too Much Classification

For effective retrieval and usage, performance objectives put into a computer require systematic codification and classification.

For the busy teacher or administrator who is thinking only in terms of local needs, much of this can seem like a waste of time.



Corrective Perspective

No system is perfect. Every approach can become outdated and perfunctory.

A system of performance objectives can contribute to the elimination of unnecessary teacher activity:

- Identical objectives that appear in two or more courses can be eliminated; this will demand a decision upon where the goal is more appropriate
- The construction of examinations, whether on a unit or on a terminal level, will be simplified; instead of writing all the test questions, the teacher will decide which of the available test items best measure exactly what he is trying to get across in his teaching
- When students learn of course goals in terms students can visualize, they will be able to realize how the objectives chosen by their teacher actually meet their needs.

Basically, any taxonomy classification has both a theoretical and a practical value for educators.

Theoretically, it places a particular objective in perspective and helps to anticipate difficulties which might arise when an idea is put into practice.

Practically, classification systems serve many purposes. Complex classifications based upon prerequisite physical skills and coordination necessary for a particular job require much time. This coding task makes more sense when one realizes how invaluable this would be in occupational counseling for the handicapped.

Possible Distortions

10. Bad Fits

Correlated readings, visual aids, teaching manuals, and test questions have been around for a long time. However, the average teacher who tries to use them in his course sometimes finds that a film or a visual aid is unsuitable for him or for his students even though it worked for another teacher.

This does not mean that the film is useless or that one teacher is right and the other is wrong. It does indicate that both teachers have similar general objectives which are quite different when one gets down to specifics.

11. Educational Technology

Many teachers succeed with large group instruction. They give well prepared lectures that challenge and inform the student audience.

When such teachers start to think in terms of performance objectives, they find that such considerations as audio-visual aids, test items, observable behavior, and criterion-reference instruction are much too technical for them. These aren't their fields of expertise.

When the computer enters the classroom scene, these teachers ask themselves the identity question: "Am I a teacher or an engineer?"

Corrective Perspective

Classification codes will make it easier to get a better fit.

It's a lot like buying a shirt. Instead of specifying a large collar with very long sleeves, this system would offer more precise choices and combinations: e.g. collar size, 14, 15, 16, 17, or 18, with a choice of sleeves from 33, 34, 35, or maybe 36. Not all students are the same, but conceivably most students would get the same style shirt in his own individual size combination. This is a close analogy to the individualization available from performance objectives.

To work, a classification system must zero in on a general area. It must also be codified in a way that will correlate with differences in teaching approaches, learning and local circumstances. A strictly general classification would probably not be specific enough for effective individual applications.

This is a quite natural situation. It opens the door for drastic innovation in the classroom. Rather than expecting the teacher to be a jack-of-all-trades, an integrated system involving performance objectives will require a team approach.

Common senses and logic makes it obvious that certain teachers excel in one or more teaching activities. Similarly paraprofessional staff members are also a valuable part of the teaching-learning team.

A teacher who can do nothing but lecture will not be left off the team. Such a teacher will have even more time to prepare intellectually stimulating lectures since someone else will take care of tests, grades, and technology.

Possible Distortions

12. Accountability

Teachers have fought for quality instruction regardless of its cost.

Once a cost-analysis is performed with the aid of performance objectives, it is easy to imagine situations where economy and not effectiveness becomes the dominant consideration.

Corrective Perspective

Cost is one easily identifiable factor in the variables of accountability.

Accountability goes into other areas: colleague evaluation, shared decisions, more effective use of a teacher's individual talents and working hours, and more diverse definitions of what it means to be a "teacher."

The emphasis in accountability goes beyond cost. It asks the question, "Who is responsible for these results or lack of results?"

This is immediately followed by another question: "What can be done to improve the situation?" The answer to this question can result in performance objectives.

13. Academic Freedom

Teachers have traditionally demanded the liberty to express their academically honest viewpoints based upon solid intellectual scholarship.

It is conceivable that once performance objectives become a dominant factor in the curriculum that this form of teacher power will be subject to a number of pressures that will militate against controversial or innovative individuals engaged in teaching.

Academic freedom is not attacked by performance objectives. Asking a teacher to present his objectives in performance objective terms is not the same as telling an individual teacher that he is not allowed to present a certain intellectual position.

Performance objectives are intended to make a teacher intellectually more honest by making his goals intellectually more understandable. An expert in performance objectives avoids saying he is trying to "eschew verbal prolixity and obfuscation." He will say he is "trying to avoid vague and unclear words not understood by the man in the street."

Performance objectives force a teacher to distinguish clearly between presenting a personal viewpoint and proselytizing.

| Possible Distortions | Corrective Perspective |
|---|---|
| 14. Autonomy | |
| When goals are spelled out in everyday language, it is obvious that they will be understood by a broad spectrum of people. Many of these will not be experts in a particular domain. | Performance objectives do not destroy the autonomy of an educator. They make him begin thinking of how to integrate his goals and efforts into the mainstream of society. Society will not necessarily force him to change his objectives, but it does demand that he clearly label them. |
| People feel free to criticize what they think they understand. It is conceivable that many non-specialists will start looking over the shoulder of the specialist with suggestions and recommendations. | This will probably become a reality once objectives are stripped of a semi-mystical language. |
| This could begin to resemble the situation where "too many cooks spoil the broth." | In the very practical matter of program budgeting, programs which are clearly stated and which make sense to a practical minded though hard-nosed individual will have nothing to fear. |
| 15. Success | |
| With a traditional formulation of goals, even the most severe evaluation will not condemn a project because it was not as successful as anticipated. | Even the best educational program will not achieve all of its concisely stated performance objectives. If none of them were achieved, this does not mean that the program is no good and has to be abandoned. It does mean that success or failure goes beyond what can be specifically defined. |
| A program which may appear to be unsuccessful can be esteemed in the eyes of the academic community. An example would be a successfully reviewed play which becomes a financial "flop." | If success has been attained, more all inclusive goals can then be proposed. |
| With the introduction of easily observable performance objectives, it is quite simple for the ordinary man to make his evaluation without any need for scholarly credentials. It can be asked whether or not this will take evaluation out of the hands of the experts and place it in the hands of the man on the street. | If a certain amount of failure is present, the conclusion should be "These particulars must be improved" and not "The entire program is worthless." It might be a refreshing change of atmosphere to have projects that needed other remedies rather than "more money." |
| | The man in the street who pays taxes should understand where his tax dollar goes. This might make him less reluctant to approve budget increases. |

| Possible Distortions | Corrective Perspective |
|---|---|
| 16. Tenure | |
| Teacher performance can be thought of in terms of student performance and achievement rather than in terms of degrees and faculty tenure. It is conceivable to think of situations wherein such traditional academic yardsticks will become less prominent in teacher assessment. | Performance objectives are more than a measurement of whom to retain or to dismiss among the teaching staff. |
| This could have repercussions on faculties and schools alike. | A good teacher would not have to worry about unfounded criticism or about gaining or losing favor since he would have objective evidence in establishing the fact that his classroom performance is up to or above minimum standards. |
| It is easy to think of situations wherein an untenured teacher might outperform a tenured faculty member. Then the question would arise: "Who should be department chairman or supervisor?" | An ineffective teacher would not necessarily be fired because he was below acceptable standards in two or three performance areas. Rather than receive a vague unsatisfactory rating, he would be told of specific needed improvements. He could then be retrained in clearly defined areas. |
| 17. Intangibles: Vague but Valuable Goals | |
| An educator open to a humanistic value system will often find himself short of adequate descriptors when it comes to putting his goals down on paper. | It is not the purpose of performance objectives to de-humanize education. |
| It's not that his goals are unreal and ethereal. It's rather a question of certain ideals that cannot always be adeuqately captured in scientific prose. There is also a certain amount of subjectivity that legitimately deserves a place in education even though it cannto be counted, measured, and parceled out in neat and precise formulas. | The purpose of performance objectives is to render an educator's objectives understandable to a broader spectrum of humanity some of whom are more or less talented in abstract verbalization. |
| Such an educator would seem in a precarious position if only highly visible and measurable goals were in vogue. | Any educator with vague but valuable objectives will find himself challenged in the necessary process of interpreting his objectives to his audience. |
| | Many a teacher sincerely believes his goals are on the understanding and value levels. At the same time, he uses memory questions as his only measurement criteria for such mundane things as grades. He needs help to admit and to remedy this discrepancy. |
| | He can be helped to search out valid measures of high level cognitive and affective changes which are not usually measured by multiple choice test items. |

Possible Distortions

18. Minimum Vision

One of the advantages of a performance objective is that it sets up a minimum achievement that can be achieved step-by step.

One of the disadvantages of setting up a minimum is that by routine and inertia, it can become the accepted norm of excellence. Once the minimum has been attained, it is easier to stop striving and to be content with doing nothing more.

Both for the teacher and for the student, this would be a sad state of affairs. It would limit the gifted to the same level of performance as the average or below-average.

19. Contracts

Signing a teaching contract involves several steps. A teacher applies for a job. The local educational agency sits down and evaluates his credentials and experience. If the teacher is deemed qualified, he is hired. The administration places its confidence in him and gives him a teaching assignment. After that, he is presumed capable of deciding what and how he will teach.

Performance objectives seem to set up different priorities. There is a wider area of decision making. Such things as detailed curricula, test items, and criteria of success are often themselves the subject of negotiations. With all these legalities, it would seem that a certain amount of legal training would come to be considered more valuable than pedagogical skills.

Corrective Perspective

Minimum performance objectives are not the only criteria of success or achievement. After one's hunger is assuaged, there is always plenty of room for dessert. Success does not exclude further success.

The concept of a performance objective on an elementary level does convey the idea that even the most severly disadvantaged, handicapped, or unskilled trainee or student can do something. They are not doomed to mediocrity simply because they are not on the gifted level.

The job of the teacher is to challenge his students without discouraging or coddling them. If he finds that a particular student has achieved the bare minimum with little or no effort, then the job of the professional teacher is to provide goals and motivation that will stimulate tha student or trainee to greater accomplishments.

As real as this objection is, it probably applies more to performance contracting than to performance objectives.

It does point out that the two areas are related. Before an educator can begin to guarantee results from his teaching, it is necessary to spell out these results in terms that can be understood by all parties concerned.

When a person buys a product in a store, he wants a certain guarantee that it will do what it claims.

Certainly, a similar situation exists in education. People want to have some guarantee that the school will deliver as it promises.

Performance objectives simply spell out what the teacher is trying to do. Once this is clear, other educational questions can be brought out in the open.

Possible Distortions

20. Working Hours

Working hours, the nine to five day seem to be part of society. The school is no exception. There are clearly stated times of attendance and vacation: one for learning, the other for resting.

With performance objectives, all this could possibly change.

Corrective Perspective

There is much truth in this objection. This same social phenomenon is happening outside the school as can be seen from the emerging concept of the 4-day week.

Schooling is thought of in terms of what one has learned rather than in terms of what one has done in order to learn. It is possible that individual teachers and students will find that they function better outside of the traditional school and timetable.

This is not the point in question. Performance objectives are concerned with the task one is trying to do, not with the methods individaully chosen to achieve these goals. In this way, education will be seen as an adventure and not as a confinement inside a school building for a certain amount of time each day.

The traditional way of keeping track of school attendance is less important than what is learned.

21. Examinations

There do exist certain systems of education where the criteria of success is defined as successful examination-taking.

In such situations, the students realize that their academic credentials are concerned only with grades on a final exam, whether written or oral. Such systems have been in force for a number of years. As a matter of facet, the disadvantages of such a method have inspired many of the features of modern classroom instruction as they exist in the United States.

Students are ordinarily taught nowadays that there are many other things that are important to an educated person even though they don't appear on the final exam.

The entire issue of the educational worth of examinations is a complex problem. It is rendered even more complicated when one recalls that the results of examinations are attached to such units as Stenography I, Business II, or Auto Mechanics III.

Each descriptor falls far short of defining definite subject matter competencies or specific marketable entry level skills.

Performance objectives do not offer a panacea for this problem, but they do try to develop descriptors that tell precisely what a person will be able to do as a result of passing a particular examination item.

It is a lot easier to verify something a person can see than to speculate whether or not a person knows or understands something.

# B I B L I O G R A P H Y

If this introductory document interested you, you might also want to write to:

Bureau of Occupational Education Research
Room 468 EBA
State Education Department
Albany, New York 12223

and ask for:

1. The Planning Document
2. A Brief Description of the Massachusetts/ New York Evaluation Service Center
3. How to Prepare Performance Objectives
4. The following individual titles:

ACCESSIBILITY — Finding Out What Other Educators Are Doing

THE FIRST STEP — How to Start Writing Performance Objectives

REPORTING FORMAT — The Question with Many Possible Answers and Approximations

THE NEXT STEPS — Starting to Think in Terms of What a Computerized System Can Do That an Individual Teacher Can't

CURRICULUM
CURRICULUM — State Syllabus? or a Tally of What is Actually Taught in the Classrooms Across One or More States!

EVALUATION — Determining How Well Objectives Are Attained

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| PERFORMANCE TESTING | Putting Research to Work for the Classroom Teacher Interested in Industrial Standards |
| CONFERENCE FEEDBACK | Using Goal-Awareness Instead of Speaker-by-Speaker Evaluation |
| BUILT-IN EVALUATION | Trying to Put Evaluative Criteria in Terms the Man on the Street Can Understand |

ACCOUNTABILITY — The Relations Between Dollars and Learning

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| EDUCATIONAL ISSUES | What to Do When the Experts Disagree with One Another |
| ACCOUNTABILITY | On an Individual, Voluntary, and Confidential Basis |
| QUALITY | How to Recognize Excellence as the Accomplishment of Clearly Stated Goals |
| AFFECTIVE DOMAIN | Developing Core Objectives That Pinpoint Attitudes Necessary for All Occupational Areas Related to Entry Level Occupations |

APPLICATIONS — Extending This Approach to Typical Adaptations

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| GRADUATE SCHOOL | The M.A. -- Developing the Graduate Frame of Mind Through Recognizable and Readily Evaluated Performance Levels |
| COLLEGE PRESIDENT | The Role of the College President Towards Objectives -- Structuring a College for Growth Rather Than Relying Solely on Charismatic Leadership |
| ON-GOING PROJECTS | Brief Resumes of What Others Are Doing to Present Their Programs in Terms That Can Be Understood by a Larger Audience Than That of the Specialized Researchist |